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Working Paper No. 4

Economics of Non formal Education

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Coverage

Non formal Education comprises a wide spectrum of organised educational and training activities outside of the school and university. It can be classified by age groups: the non formal learning organised for (pre school, unschooled and under schooled) children in the age group 1-15, and that organised for youth and adults (unschooled, underschooled or needing new additional skills) in the age group 15-60. Non formal learning can also be classified by the learning content involved into those organised activities where the major emphasis is on general education, and those where the content is mainly vocational. The institutions and agencies involved in Non formal education and training, by the order of volume of activities undertaken are universities, and colleges including tutorial schools and colleges, union, state and local government and para government departments and agencies, banks and public sector agencies, the private corporate sector firms, trade unions and voluntary organisations. Non formal learning in the country covers balwadis and anganwadis, education and training programmes for school and college drop outs, the unemployed and under employed, agricultural and farmers extension training, training of health workers, family planning personnel, village level workers, illiterate adults and adult education instructors and supervisors, management personnel at various levels, factory workers, workers in the unorganised sectors, education of the physically and mentally handicapped and remedial, recurrent and updating courses, including those in universities and national science laboratories.

Rationale

The basic economic rationale for the vast, growing and multi faceted non formal learning activities just inventoried, including the most recent Plan innovation called the National Adult Education Programme, is the same as that for formal education and training. It is that the nation's wealth is its people, so that the expenditure on the education - formal and non formal - of its people is the means of conserving and increasing its wealth. This idea that Education is investment in people goes back to Adam Smith who traced the superiority

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of his native Scotland's manufacturing industry to the superiority of the Scottish educational system.[1] John Stuart Mill distinguished between the human being whom he did not class as wealth (because he is the purpose for which wealth exists, Mill rightly points out), and his acquired capacities (which he states exists only as a means and have been called into existence by labour) which are wealth.[2] Alfred Marshal referring to knowledge as man's most powerful means of production made a first attempt to compute the returns on expenditures in developing this means of production.[3] Karl Marx called attention to the importance of technical training in increasing the productivity of workers and pointed to one of capitalism's failures, namely that of private employers who refuse to spend resources on this account.[4] (This seems to strike home to us in India in relation to the fact that no landlord runs literacy classes for his agricultural labour force as well as the fact of the limited education and training offered to their labour force by industrial firms). This tradition of looking at educational expenditure as investment in human beings gathered momentum in the fifties and sixties when detailed studies were undertaken to show that the returns, both individual and social, on the expenditures on education are over the life time of the individual as high as, in some cases higher than the returns on expenditures on physical capital.[5] Thus parallel to physical capital as a produced physical stock whose services were available over time, economists spoke of human capital as a store of knowledge developed by education and used over a period of time, and developed various models to carry forward Marshall's pioneering attempt to identify the contribution of Education to Economic growth.

Correlation Model

One model was the correlation model, which established a correlation between high rate of economic growth and high levels of educational expenditure. It was noted that countries which were in an advanced stage of economic development were countries where a relatively large part of their Gross National Product (GNP) was being expended on education. In the economically advanced countries whose per capita real income increased from $2000 in the sixties to $3000 in the seventies

educational expenditures increased from 2.7 of their GNP in the sixties to 5.2 per cent in the seventies. In North America and USSR where economic growth has been increased by 5 to 6 per cent, enrolment in primary education is 98 per cent, in secondary education 92 per cent and in university education 45 per cent. In the sixties and early seventies the increase is Gross National Product and in educational expenditures of the economically advanced countries show a coefficient of correlation, both in absolute and in capita terms, of 0.95 to 0.99 per cent.[6] Again studies on pattern of literacy and economic development, show possible correlations between the level or spread of education and economic levels, with 30 per cent to 50 per cent of a literate population being the threshold literacy rate for economic development, as no major industrial power has ever achieved steady industrial growth with a literacy rate below 40 per cent. Among 24 countries with per capita income of $500 and above examined in one study, only 3 had literacy rates under 90 per cent. About 90 to 95 per cent literacy is seen to accompany per capita income above $5000.[7] Examining the World Atlas of the World Bank for the latest information, it is found that when world GNP doubled between 1960 and 1975, the countries with 70-90 per cent illiteracy had little growth and per capita incomes below $150, those with 50-70 per cent illiteracy also had low growth rates with per capita incomes of $300, whereas those with below 10 per cent illiteracy had the highest growth rates and averaged over $1000 per capita.[8]

This Correlation Model juxtaposes economic development and education - formal and non formal. It does not tell us whether a high rate or stage of economic development is the cause of high levels of education and literacy or whether increasing education produces increasing rates of economic development. Either could be possible. Certainly a highly developed country can spend more on education because it has a surplus after meeting the other physical and material wants. of the community. Also the individual citizen in a rich country can spend more on education for its social, cultural and artistic enjoyment, for what economists call the consumption aspects of education. Education and more

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and more of it can to such persons be a source of endless satisfaction. Equally education can, through training people in the skills which the agriculture and industry of the country need, lead to increased economic growth. In the case of Denmark, the folk schools which were the first non formal education institutions established in the world enabled that country to make the quantum jump in its economic structure from traditional agriculture to modern dairying. Similarly Japan's massive educational effort initiated by the Meija revolut in 1867 moved it from a feudal to the industrial giant it is today. Similar evidence is to be found in USSR and China. The counter argument that England and France, the first industrialised nations to emerge in the nineteenth century, had high per capita incomes with over 50 per cent of their populations illiterate is wrong use of history, and is no inter country parallel, because today's economic growth is based on the application of science and technology which requires an educated labour force, and the two countries had comparative costs advantage in world trade which they dominated based on their vast imperial holdings in Asia and Africa. It should be admitted that the studies on the correlation between literacy and development referred to earlier show the relations between them to be loose ones, and that "economic gains associated with growth of a literate minority level off quickly, the economy remaining on a low plateau, until education has built upto a threshold at which wide spread transformation is possible." The Correlation Model based on historical and inter country comparisons does not tell us whether education is the cause of economic growth: it does tell us that some where around 50 per cent of a literate and educated population in a country is a necessary though not a sufficient condition for economic development.

Residue Model

A second Model that has been developed on the education-development relationship compares rates of increase in total production to rates of increase in capital and labour employed to produce that total-

and finds that there is a residue in the total production left unexplained. Applied to a wide range of countries, the model uncovers a large residue, ranging from 60 to 80 per cent of the increase in total production which is not explained by the input factor increases of capital and labour. Studies comparing the GNP of the US over 4 decades (1919-1957) find that the increase in land, labour and capital investment during this period should have produced only one third of the increase in GNP that actually occurred; in UK the increased investment of the 3 factors in a group of industries during a six year period is shown to account for 25 per cent of the increased output of these production units: in the USSR, analysis ranging over a 30 year period shows that some 20 to 30 per cent of the national income is not imputable to the physical factors: in Japan during the decade of the fifties, there was almost no increase in investment in the traditional factors in agriculture except a small 2 per cent increase in cultivated land and yet rice production increased by 20 per cent: in Israel during the same period an increase of 10 per cent of investment in the classical factors seems to average a 60 per cent increase in its primary production: and Mexico with an increased investment in the traditional sense of 22 per cent in agriculture during the period 1945-60 more than doubled its agricultural production. Thus this residue in the rate of increase of production, left over after allowing for the increase due to increased capital and labour application is attributed to education in the broad sense - which includes formal and non formal education, literacy, training, mass media, research and development-, as well as technical progress and health.[9]

The limitations of this Model must be recorded. First the Model depends for the validity of the calculations on a very large and broad range of historical data on which the studies are based and these data raise several technical as well as general questions which the above reference elaborates. Second capital used in the Model must allow for the fact that it is not an unchanging quantity like wooden ploughs: in the industrialised countries it is not the volume but sophistications of capital use that is occuring, so that large volumes of physical

capital are being replaced by better and more efficient capital. Hence from the residue there is need to further subtract the increased product due to the changing quality, productivity and sophistication of the capital input before arriving at the real residue attributable to education, etc. Finally conceptually the residue is another term stating that we do not know, that it is really a rather intriguing expression confessing our ignorance. The residue is an amalgam of many varied factors - namely education, training, R & D, public health, product mix, economies of scale and structural changes, each of which accounts for parts of the residue, according to the exponents of the model. In actual fact, however, we have not as yet developed tools to break down the residue in terms of the separate contribution of each of these many elements in order to quantify precisely the contribution of education to economic development. Allowing for all these limitations, what emerges is that education and training, formal and non formal, is one element that makes for increased production.

The Rate of Return Model

This third Model on the education - development relationship aims at identifying the return to any given educational expenditure by the individual or the State. On the one side is the cost of creating facilities and on the other the results obtained in monetary terms by the additional education received. The monetary cost is obtained by estimating the earnings of the educated person and comparing them with the sums expended on his education, discounted in order to equalise the time factor. In other words, the Model relates the additional earnings of the educated or the literate to the investment in their education and attributes these higher earnings as the product of education.

India's investment in education, training and research is large and complex. It is large because it increased by Rs.5000 crores in the fifties, by Rs.10,000 crores in the sixties, and has spurted from Rs.1640 crores in 1974-75 to Rs.2092 crores in 1976-77, of which 13 per cent

is by Departments other than the Education Department. It is copplex because of the distinction between Plan and non Plan expenditure, under which Rs.164 crores in the Education Department and Rs.65 crores in other Departments were budgeted under Plan and Rs.1657 crores in the Education and Rs.206 crores in the other Departments under Non Plan for the year 1976-77. Also the Plan outlays under the Education Department have increased from Rs.149 crores in the First Plan to Rs.1285 crores in the Fifth Plan and under the other Departments even more sharply from Rs.49 crores in the First Plan to Rs.1487 crores in the Fifth Plan.[10]

In the financing of Non formal Education, the Draft Plan for the coming five years, 1978-83, makes almost a quantum jump compared to that of the previous five Plans both in absolute and percentage terms as the following table shows.

	I Plan	II Plan	III Plan	IV Plan	V Plan	1978-83 (Rs.in crores)
Total Education	153.0	273.0	597.0	786.0	1286.0	1955
Adult Education	5.0	4.0	3.3	4.5	18.01	200
Adult Education as % of Total Education	3.3	1.5	0.5	0.6	1.4	9.8

During this near three decades, there was a simultaneous increase in the percentage of literacy and an increase in the number of illiterates in the age group 14 and above as the following table shows:

Year	% of literacy	Number of illiterates in crores	
		Total	Women
1951	19.26	17.39	9.50
1961	27.76	18.70	10.87
1971	34.08	20.95	12.31
1977 estimate.	38.00	22.65	

Similar trends of rapidly increasing expenditures on both formal and (more slowly) on non formal education in all countries have been noted

earlier. Are these decisions on educational expenditures made on the basis of the returns to education, are they related to the costs of and benefits from education expenditure?

The classical study of the returns to educational expenditures was that of the Soviet Econometrician S.G. Strumilin in 1924 who on the basis of an empirical survey computed that 1 year of primary education increases on the average a worker's productivity by 30 per cent as against 1 year of apprenticeship in a factory which raises his productivity by 12 to 16 per cent, from which he concluded that the improvement in qualifications resulting from one year's education at school is, on the average, 2.6 times greater than that resulting from one year's apprenticeship. Later in 1953, he computed that against the expenditures of 1600 million roubles for 10 years of schooling, the capital value of the working labour force increased to 69,000 millions, - that is 43 times.[11] A similar study in a Latin American country shows that an illiterate worker earns 1000 to 3750 in local currency annually, while a worker with primary school qualification earns 5000 to 7500, and a secondary school completer 12000 to 18000. Several studies[12] on the returns on the large and growing educational expenditures in India referred to earlier show that (a) the rates of return to different levels of education in India vary considerably, (b) the highest rates accrue to literacy and primary education, while the lowest to the arts or science degree (which is the economic equivalent of the criticism that Indian education is top heavy, like an inverted pyramid), (c) the return to literacy is 15.9 per cent, (d) the private and social return to primary education are also high at 12.5 per cent to 17 per cent, (e) the return to matriculation is 10 to 12 per cent, (f) the return to the bachelor degree is 8.9 to 16.9 per cent, (g) the return to post graduate degree is 16.3 per cent, and (h) the engineering education return is 9.6 per cent to 25 per cent. (The range shown above refers to the results of the different calculations in the different studies). There is some difference also in the studies about whether or not the returns on education are higher or lower than returns on alternative investment options, with a general agreement that

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social rates of return at the higher levels (B.A., B.Sc., B.Com.) are lower than returns on alternative investments. One of these studies is a sectoral analysis of management education and concludes that it has a high positive net present value at 16 per cent internally and even when its returns and costs are discounted, at a social rate of 13 per cent. If income is thus a measure of productivity, increase in literacy (primary education) and general formation (secondary education) will increase national income, provided the costs of education do not exceed the benefit.

Cost-benefit tool

At this point it is necessary to turn to a more detailed examination of the cost-benefit analysis tool because in theory it replaces the price mechanism which does not operate in the case of education in the choice of investment projects. Investment is used here to refer to allocation of available resources which have alternative productive uses to an activity, in this case of education, whose benefits will accrue over a period of time. Benefits are the goods and services produced as a result of education as well as what was earlier termed the consumption benefits of education. Costs are benefits that could have been obtained by using the resources used in education in an alternative activity like roads or hospitals. It is against these definitions that the theoretical statement is made that investment in education is justified so long as the expected benefit exceed costs.

On both the cost side and benefit side, non formal education has decided advantages over formal systems of education. On the cost side, non formal education rarely involves large capital costs in buildings, equipment, workshops, laboratories or libraries, as it is usually a parasite on existing school and university buildings, equipment, laboratories and libraries at times when they are not in use, or the building and other facilities available in a factory, firm or village school or even temple premises. The cost computation must include opportunity

cost of teachers and students as well as the possible alternative uses of the resources used. The teacher cost is nil if the teacher is a volunteer or minimal if he/she is paid a supplementary honorarium for the work. In case the teachers used are unemployed matriculates in the village and the non formal classes are held outside of the working time of the adult students, there is little or no opportunity cost. On the other hand in Maharashtra's Employment Guarantee Scheme, illiterate workers are allowed to work for 6 hours instead of 7 in order to attend literacy classes and hence there is one hour of work foregone for literacy learning and must be reckoned in on the cost side. In the National Adult Education Programme (NAEP), the teacher cost is the honorarium of Rs.50 per month compared to average of Rs.200/- per month for the primary school teachers. The NAEP per learner cost of basic learning materials is Rs.9.50 compared to the Rs.40 of the primary school learner. The equipment, kerosene/electricity and other cost per NAEP learner is Rs.10 compared to Rs.60 per primary school learner. The NAEP administrative cost is Rs.63 per learner recurring and Rs.80 non recurring compared to Rs.200 and Rs.320 per primary school learner. The training cost in NAEP is Rs.67 per learner, while it is Rs.200 per primary school student. The programme as a whole has been budgetted at Rs.200 crores for the first four years, which of course have other alternative uses in education itself, say in technical or secondary education, or in irrigation which could make available 400 hectares of additional irrigated land, or can finance the capital cost of a 2 million tonne annual capacity steel plant or provide rural housing for about one twentieth of our villagers who have little or no housing. When these alternatives are taken into account in establishing the cost of NAEP, its total cost including opportunity cost may be between Rs.250 to Rs.280 crores (on the assumption that an amount of 25 man days per illiterate is involved in income foregone).

On the benefit side, non formal education has similar distinct advantages over formal education. The simplest case is the Farmer's Functional

literacy programme or the Farmers training programme or the Farm Radio Forum which increases the farmers productivity and agricultural production immediately, which no amoun of agricultural education to school children or adolescent college students in the formal system can do. It is the same with the benefit which accrues from non formal education programmes for fishermen in the use of mechanised boats for fishing and the cleaning and storage of the enlarged catch, for dairy men under Operations Flood II, for management of small industry and artisans compared to all the vocational training given in the vocationalised stream in the plus 2 courses or in the Industrial Training Institute (ITIs) and even polytechnics. This is not say that there are not some very real difficulties in computing the benefit to any form of education - be it non formal or formal. There are major political benefits from education such as consciousness of one's right and the nature of exploitation to which one is subjected, that is immediate in the case of non formal programmes for adults and adolescents, and a long term benefit for school and college students. These cannot be measured or compared over time or between various alternative allocations. There are also indirect economic benefits which non formal education such as adult education and literacy confer such as a spirit of self reliance leading to increased geographical and professional mobility. This is also one of the effects of the rural primary and secondary school, which raises the question of benefit or disbenefit in this kind of one way geographical movement from village to town by primary/ secondary school completers, looking for clerical jobs and denuding the rural country side of the talent that it needs to meet the many challenges posed by the application of science and technology to farming, fishing, dairying etc.

At this point it is necessary to review the rather serious conceptual and empirical limitations of this Rate of Return Model, with its rate of return/cost benefit tools. Educational expenditures are not only a form of human investment which increases future earning capacity, as noted earlier they also enable the person concerned to satisfy present needs. This simultaneous investment and consumption effect of any given

amount of educational expenditure by a person on himself or on another person makes impossible the separate analysis of the effects of such expenditures as investment as distinct from consumption. Attempts are being made to isolate and quantify these components of education which affect human capabilities to do productive work, but they are as successful as computing the amount of food, clothing, housing, and even what we call luxuries which are considered necessary, for increase in productive work. Another aspect of this approach is that the earnings differential between persons or for a person overtime cannot be attributed solely to additional education. Here again it becomes difficult to separate how far the additional earnings of the literate worker is due to his having acquired literacy, how much of it is due to the sector in which he is employed(the labour working in a dry farm area earns less than one in a wet farm area), how much is due to innate abilities (as shown in work performance by persons who have had the same 10 months of functional literacy learnings), how far it is due to ascribed and acquired status (harijan and women performing the same work are paid less than non harijan and men), and how far it is due to family influence and class bias (in our elite dominated caste based society additional earnings may well be a reflection of this factor than of additional educational qualifications). And then there are technical issues involved. A rates of return analysis needs information on marginal costs and marginal returns, whereas, with the joint and multi nature of costs and benefits referred to above, to which our statistical imperfections should be added, what is available is average costs, average returns and time series projections with cross section data with no allowance for the productivity series. And probably more serious is the view that at the present state of education particularly in India, the education degrees and diplomas acquired by a person through expending of resources are not a means of telling what a person's productive capacity is, because that would only be known over time on the job, and that the content of our formal education is not skill building (it is information oriented memory testing). Hence education does not assure increased productivity, it is a good filter or market signal for getting jobs, and even that it is not doing well in our country. The outreach

of these limitations should not be pushed too far. Even with physical capital, no mechanistic causal relationship can be established between additional investment and the additional value of the resulting product. The additional value depends, inter alia, on how and where the additional investment is made, the extent to which the resulting additional product serves the production needs of the economy, and the consumer preference and demand for the product. Making allowances for all factors, I believe that there is enough evidence to show that there are returns to education and that these returns are high, and that the returns to non formal learning are higher than those to formal education, mainly because of certain economies which are possible in the cost side.

A good recent empirical study[13] on the comparative cost benefit outcomes of formal and non formal education is in relation to the 1961 special (NFE) training programme for gram sevikas that was run by the GB Pant College of Agriculture and Technology, Pantnagar, U.P. It was a non formal programme because (1) the college's three year B.Sc. agriculture offerings were compressed into a 2 year learning effort, and (b) the admission requirement substituted experience in extension work (five years) for the formal education qualification (the two year degree). The costs of the programme were computed from the returns made by all the graduates from 1965-1971 on actual expenditures on tuition and fees, food, hostel and scholarships received, while the official university expenditures for recurring and non recurring budgets provided the base for computing social costs. With regard to benefits, age specific earnings profiles were developed, using a single equation regression model, based on 7 variables of monthly earnings and 5 variables of employment.* Both equations should show good fits, the R^2 for the gram sevaks equation being 0.661, and for the regular three year graduate being 0.541. The average age of gram sevaks when completing their non formal learning course was 31, and that of the regular formal college graduates 21. The study also computes social costs and social benefits. Social costs involve the total resources expended in training

agricultural undergraduates at the college, which include (a) the annual recurring expenditure per student, (b) the annual rent per student on the fixedcapital investment, (c) the student's expenditure on books and stationery, (d) the annual expenditure per student on food and lodging at the college, (e) the income foregone per student in entering the college rather than entering and earning in the labour market, (based on the earnings of matriculates in the Urban Income Survey of 1960, adjusted to inflation, using the RBI consumer price index for urban non manual employees), (f) the earnings foregone by the gram sevaks based on the information in the questionnaire and using the earnings of graduates who were not promoted from the gram sevak's position after leaving the college, as it is through promotion that higher education is reflected in higher earnings, while in the case of regular graduates in the absence of similar longitudinal data, it was assumed that 60 per cent of the differential earning was due to the expenditure in higher education, (g) the teaching cost (which in 1970-71) was 29 per cent of the staff time due to the vast research and extension activities which had since developed and which made the teaching time nearer 80 per cent at the starting stage of the college in 1960-61), and (h) the additional time taken by the regular graduates to complete their courses. Social benefits or rates of return were computed on two assumptions, the first assuming no delay in the promotion of gram sevikas, the other opportunity concept, that is the social return from this course for gram sevikas being the monthly income of the regular three year agricultural graduate because of the similarity in their training programmes, the better academic performance (higher grade point average) of the gram sevikas, and the number of gram sevikas who left government services. On this basis, the non formal education expenditure on the gram sevikas, under the first assumption, gave a social rate of return of 8.3 per cent, while expenditure on the regular B.Sc. graduate employed in government service gave a social rate of return of 9.9 per cent. Under the second assumption, the social rate of return on the non formal education expenditures was 13.5 per cent. Here the non formal education programme is more efficient, brings in a higher rate of

return than the formal programmes, and has some important pointers to the complementaries between learning and work experience.

Similar cost benefit[14] studies have been made with regard to lengthening the period over which university education can be obtained either through getting secondary school completers to enter the labour market and postpone their higher education expenditures (which is one purpose of 10+2+3 pattern) introduced in our country or by spending resources on providing older working people with university education (which is the aim of the open university experiments of the Andhra, Mysore and Madurai universities). The conclusion of these studies is that costs of postponing higher education in these cases are very high, and the cost-benefit low, while the expenditure on opening up higher education to older people results in the low cost high returns operation. There are several assumptions in these studies such as full employment of graduates constant earning differential between university and high school, graduates etc. which do not apply to the labour market in India. What does apply is the relatively low cost and high return of providing non formal higher education learning to older individuals who have not had such learning opportunities.

Wider (social) benefits

In the analysis related to this Model and in fact in the entire discussion upto this point, there has been a some what narrow linking of Education to considerations of efficiency in its GNP contribution, its cost income relation, its investment aspect - with the exception of the brief references to the consumption aspects of education. Education has however a much wider connotation and impact, and economists from the time of Adam Smith were aware of this. Adam Smith expressed it in his own graphic language thus: "the more they (the people) are instructed, the less liable they are to delusions of enthusiasm and superstition which among ignorant nations, frequently occasion the most dreadful disorders. An instructed and intelligent people, besides, are always more decent and orderly than an ignorant and stupid one -- they are more disposed to examine, and more capable of seeing through, the interested complaints of faction and sedition and they are upon that account,

less apt to be misled into any wanton or unnecessary opposition to the measures of government." These wider benefits of education may be grouped under seven broad heads: i) improved income distribution and social mobility; ii) changes in attitudes and values; iii) credible political leadership; iv) lower unemployment; v) enhancement of the productivity of capital; vi) increased quantity and improved quality of research; and vii) improved mix of manpower skills.

Education and equity

Perhaps the most important wider effect of education, particularly for India at this stage of its development, is that of its contribution to greater equality in our unequal society. If attention is concentrated solely on the cost benefit effect of education from the quantitative point of view as above, then there would be a case for concentrating education on those who can most quickly acquire it and benefit themselves and society from it, as is the case in the farmers functional literacy programmes which are concentrated in the so called Green Revolution areas or the NAEP which in the principle is limited to 15-35 receptive age group. Economists who hold this view state that though this may worsen distribution by making relatively well off farmers even bettern off or the adolescent and young adult age group earn more than their elders, these inequalities can be corrected by fiscal measures transfer payments and taxes, as was proposed in the DraftFifth Plan. But as experienced in that Plan period such compensatory transfers were not made, primarily because of the unwillingness of the well to do make such transfers or accept higher taxes. This means that in deciding on the kind of education and training programmes that should be undertaken, there should be a conscious weighing of its cost benefit effect in the narrower sense of efficiency as well as in the wider sense of equity. In some cases there may not be any conflict between the two. In the case of the training of gram sevikas referred to earlier it was found that expenditures on it had a high social benefit - at least as high as that of the formal education of the 3 year B.Sc. (Ag.) graduates. The gram sevikas

NFE programme also contributed to equity. While the regular B.Sc. course students come from farm families with the medium land holdings of 30 acres (who from the top 1 per cent of our rural socio-economic group), the gram sevikas came from farm families whose mean land holding was 10 acres (that group forms 10 per cent of this land holding class in rural society). Thus while the non formal education programmes in Pantnagar did not cater to the needs of the poorest farm families (the SFDA, MFAL or DPAP farmers), it did help a lower socio economic group than the parallel formal education programme. But usually in both formal and non formal learning systems, the intended effects must be examined from the points of view of both goals, that of efficiency of allocation and equity in income distribution, and the necessary trade off consciously decided.

The Equity goal of any educational expenditure could be horizontal or vertical. The horizontal dimension involves persons in similar circumstances being treated similarly. This is the raison d'etre for free universal primary education, where all children from all classes are given tuition free education, and in the case of children from the poor families free text books, midday meals and free uniforms. The same type of reasoning explains the special priority given in Non formal Education to the adult education of women and tribal in the NAEP which in its own words explains: "it has long been accepted that the exclusion of the vast masses of people from educational opportunity affects women and tribals much more adversely than the rest of the population.... The educational disadvantage of women and tribal is both a symptom and a cause of their social oppression." Hence in NAEP top priority is given to providing learning to (a) working women in the organised and semi organised sectors, requiring employers to relieve the women workers from duty during the adult education classes, and providing facilities for the classes on the premises in exchange for incentives such as tax incentives, rebates for loss of work, and public awards, (b) rural working women outside of their harvesting or sowing seasons using as sponsors the khadi and village industries institutions, cooperative

societies, child welfare and maternity health centres, PHCs, trade unions, Mahila Mandals etc. (c) tribals, starting with those in zones of influence of industrial and mining companies and other areas of intensive economic activities, and (d) tribals living in extremely low literacy pockets and where there are large masses of landless (and in many cases bonded) labour. Vertical equity refers to action to (a) compensate people who are at the lower income deciles of society, which the Planning Commission computes in 1977-78 at 290 million of our people living in poverty, through employment generation and a minimum needs programme which starts with the provision of elementary and adult education to the people concerned, and (b) restructure society so that root causes of poverty are ended by the rural and urban poor organising themselves to fight for their rights for a just a equitable society - as set forth in the rather unusual programme of action called Redistributive Justice in the Draft Plan document.[15] Both post primary formal and all forms of non formal education are part of this programme of vertical equity.

How far does education make for equity in the sense of equality of incomes (incomes for this purpose cannot be the monthly or annual incomes but life time incomes which in terms of present value of such life time earnings raise a host of theoretical and empirical difficulties) as well some equality in assets ownership? Free primary education and its accompanying additional incentives referred to earlier may not attract the lower income groups, as the heavy dropouts in the formal system and the problems of motivation in non formal education high light, because of the serious constraint of the opportunity cost of all education for such poor people in India. Education has an effect on income, but the extent to which it will make for equality of incomes has not been established in the many studies that have been so far undertaken. (The negative effect of formal education on income equality is referred to later in the financing section). In regard to equity in assets ownership, the non formal education programme can make a contribution to the Redistributive Justice action referred to earlier. The National Adult

Education Programme refers to "the correlation of learning, working and living on which it is based and its objective of the illiterate and the poor rising to their own liberation through literacy, dialogue and action."

Attitudinal Change

A second social benefit is the change in attitudes and values that education brings about in people. Education develops the desire to improve oneself, to be open minded, to experiment and change, to reason and judge for oneself and to be a better member of the local community and an intelligent citizen. The three aspects of the National Adult Education Programme seem to concentrate on this social benefit in referring to "literacy and numeracy, - of a sufficient level to enable the learners to continue self reliant learning, functional development, - functional viewed as the role of an individual as a producer and worker, as a member of the family and as citizen in a civic and political system, (and) social awareness - including awareness about the impediments to development, about laws and government policies, and the need for the poor and illiterate to organise themselves for pursuit of their legitimate interests and for group action."

The literacy process envisaged in NAEP is in effect cultural action for freedom, so that it is not the imparter of information but the producer of behavioural change, promoting the practice of self help and participation in political decision making and in industrial and agricultural innovation. This incidentally is the comment in regard to the continuing controversy of the relative merits of what is called Techniracy[16] in our country versus the literacy process. What our fact changing society needs is not people with information but those who can read, think and decide for themselves, not lightly lettered men-women who are ready and willing to work at endlessly repetitive tasks but those "who have the future in their bones", not those who will receive information handed to them and take orders in unblinking fashion, but those who can decide for themselves the size of their families and choose between the political and social options open to them. This is

not to say that the various media and means of information such as verbal explanations, demonstrations and inter personal communications between illiterate or neo literate farmers or artisans, radio and TV forums are not necessary to supplement literacy instruction. They are, but to rely on them as an alternative to literacy is to use methods which are more costly in time and teaching, since they have to be repeated every time there are new developments in farming technology. Further in the case of farmers, increased output brought about by techniracy is not a one shot affair; there are second generation problems that the increased product gives rise to, such as storage, marketing, changes in employment caused by more time for off-farm work. The literacy method per se unless functional to the post harvest problems referred to may not be as effective as other means of communication. A Unesco study[17] on the relative impact of literacy classes and radio forums in India refers to the increase in both knowledge and adoption of agricultural and health innovations produced by the functional literacy classes, but also to radio forums being superior to the literacy reading method, due mainly to the illiterate participants in the latter being persons with low motivation from a lower social class than those participating in the radio forums; also the animation techniques used for training village leaders were found to be less effective than either the radio forums or literacy classes because of the inadequacy of the technique used. Thus literacy has to be functional, its techniques supplemented by other media, and above all it has to be continued or have a primary education base, if it is to produce the social benefits referred to. From this point of view the literacy trends and their composition in the country are disturbing. While in the fifties (1951-61) the literacy rate increased by 7.3 points, in the sixties (1961-72) it decelerated to 5.3 points, due to a small extent to a change in the definition of a literate, but more to slackening of the literacy effort to the increased rate of relapse into illiteracy seen in the slowing of primary education from 82.2 per cent in the fifties to 55.4 per cent in the sixties, and above all to the lower priority given to literacy by the government (which cut adult

education's initially meagre allocations even further to meet the pressures of inflation). Hence it is not surprising that the composition of the educated and literate persons worsened as between the two periods. The literates without formal education who were 13.29 per cent of the total population in the fifties declined to 10.69 per cent in the sixties, and among organised workers, literates wihout formal education fell from 27.99 per cent of workers in the fifties to 10.69 per cent in the sixties and for the population as a whole from 33.16 per cent to 18.35 per cent.[18]

The attitudinal and value changes of education, particularly non formal and adult education, which have been analysed at some length above are undeniable. But there are two problems that must be faced. First some of these attitudinal changes, like the desire to better oneself or the capacity for reasoning and analysis are not always social benefits. They are individual gains which may have a social cost, as when a primary school completer refuses any non white collar job and so adds to the country's unemployment. This is a social dis-benefit stemming from education. Yet another is when a graduate accepts any clerical post which makes for stagnation of the economy, or as the Director of tribal welfare of one of our states remarked when literacy or primary schooling makes the honest and innocent tribal man or child learn the art of cheating in examinations or competitive corruption from watching his teacher fudging his rolls to draw his salary. Here the invisible curriculum is even more important than the visible one. The second problem is probably more serious in that the kind of social benefit in the form of attitudinal and value changes that education produces is available only to a minority of our people who have access to higher levels of education. Field studies in the early seventies in our country showed that 80 per cent of our high school and college completers come from the top 20 per cent of our society.[19] In this regard our formal higher education system contributes to and perpetuates social inequality rather than equity. However in so far as education at the primary and non formal level is widening and its subsidisation is helping it to reach more and more people who in pre-independence days had no access to education,

there is a presumption that the rental element . enjoyed by the former educated few is now bwing shared by a large group who have access to some formal and non formal learning. There is urgent need to quantify this hunch.

Other Social Benefits

The third social benefit refers to improved public leadership that education makes available. It is true an educated person in our country exercises political leadership roles and that education is a necessary condition for discharging such roles. But here again, looking around at our political scene, the question may be posed as to whether the quality of political ambition and/or the financial capability to invest in the political process are not the sufficient condition as much as education is the necessary condition for political leadership.

Of the other four social benefits, those relating to employment, manpower skills mix and enhanced productivity of capital will be considered in some detail when analysing the next, Manpower Model. All that needs to be stated here in summary form is that while education makes possible a better mix of man power skills, provides a base for developing a research and development system needed by the economy, and through vocational and technical education programmes improves the productivity of capital and other physical assets, there is need for further empirical studies to substantiate what amounts at this stage to guesses as well as the recognition of the growing and wasteful marginalisation of so much of our science and technology in our universities and national laboratories in relation to the science teaching and technological research of the industrialised world. And the coexistence of an expanding education system with an even more accelerating educated unemployment situation in the country, not only makes it difficult to establish a simple correlation between education and employment, there is some question as to relevance of our education to our employment practices.

Manpower Model

So far education, both non formal but particularly formal, has

been examined as a source of earning incomes, as a necessary condition for economic development, as a form of conspicuous consumption for the middle and upper classes, as the forum for socialisation of children so that they fit into different roles and classes of our society, as a baby sitting services for raising the additional unskilled workers that our unjust economy needs, as a medium for personal development or as a system for reproducing and safeguarding idealogies. Now in this last model, education is viewed as a vast system of vocational training and as a means of expanding and updating people's skills. This is the Manpower Model approach which establishes precise relationships between certain levels of production with certain techniques and the demands for manpower of all grades which are as a result determinate. The sectoral and technological composition of economies are used to derive the volume and type of skills needed by them. The skill requirements of each sector and sub sector thus being derived, in education system - formal and non formal - is adjusted to meet these skill requirements. The resulting education and training programmes will, it is expected, shift the Philip's curve forward towards its origin. One study[20] in the United States computes that a very substantial expansion of manpower programmes is needed by that country, which would be cost effective in improving its trade off between inflation and unemployment. It estimates that an increased expenditure of $ 14 billion on manpower programmes will increase that country's GNP by $30 billion. These conclusions and the analysis leading to them have been challenged on grounds of unreal assumptions, and lack of empirical evidence.

However it should be recalled that the first Science and Technical Manpower Survey in our country was undertaken by S.S. Bhatnagar and was used as the means of developing our early science departments in universities, our expanded engineering education and the national technological laboratories. Similarly the studies of the Institute of Applied Manpower Research have been used since the Third Plan to regulate the total number of additions to the country's Polytechnics which train technicians and production engineers, and Engineering colleges and

Departments and IITs which turn out graduate, design and research engineers. This model helps quantify the amount and type of skilled manpower needed by our changing economy which is then used as a guide for developing the kind of educational structure - formal and non formal - needed and the content of the curriculum. The model is based on a rather simple unlinear relationship between skills and their educational equivalent, - that is, any demand for an increase in the number of specialists needed for any particular level of economic development is a demand for an increase in a specific branch of education. Thus in the Fourth Plan it was decided to establish 3 integrated steel plants in the south and this called for a certain number of design engineers, metallurgical technologists and technicians to supervise and maintain oven pushings on which basis the intake in specific branches of our engineering and technical institutions were changed. Similarly in the Fifth Plan from the decision to build five fertiliser plants and 4 refineries and in the current Plan for 1979-83 from the target creation of 18,500 MW electricity generating capacity and an increase in irrigation by 17 million hectares, the manpower requirements have been derived and the educational system adjusted to meet the new skills demand. Further an increase in engineering or technical or agricultural admissions must be accompanied by increase in the entire education system - in order departments of higher education to keep a balance and provide the supporting in frastructural services, in secondary education to increase the number of high school completers who can go on to engineering, agricultural and medical training, as well as the increased economists, chartered and cost accountants, management and other personnel who have to be trained in increasing numbers. Further literacy and non formal education programme alter the skill composition of the labour force and so increase employment all_round, and unlike in industrialised economies where this might engender inflationary pressures, in India this would stimulate the economy. These benefits are additional to the shift of the Philip's curve towards its origin as referred to earlier.

Some recent studies[21] have raised questions as to whether the

skilled manpower needs derived from such sectoral agricultural, power or industrial plans can be met by formal vocational or technical schools, rather than by non formal training programmes. On the evidence of increasing unemployment or technical school graduates coexisting with the unmet increasing demand for technical and vocational skills, it is concluded that formal education is efficient in imparting basic knowledge and general education and very inefficient in imparting vocational skills, at sub-university levels. The growing unemployment of ITI[22] completers, while there is a growing unmet demand for many types of skilled workers may in part refer to this analysis. Because the skills imparted in ITIs and vocational schools are specific and not theoretical, they become obsolescent quickly, sometimes even before the student has completed his welding course for example, the technology in demand in the market has changed. Some economists therefore go so far as to recommend that not only should vocational schools be discouraged, they should be abolished. A more tempered and tentative conclusion is that in the case of skills training which are liable to early obsolescence, that such training should be given in non formal education programme, preferably by employers rather than in formal vocational and technical schools with their inherent tendency to lag behind current changing production techniques. The relation between education and employment via manpower surveys and budgets is rather a loose one: at the restructured work-oriented primary school level and at the functional literacy level, they are close, their costs are low and their pay off in the case of adults immediate, though if we stop here we are simply assuring society of a continuing supply of literate unskilled workers: at the university level, professional education must be guided by manpower needs: and at the secondary or post primary level, manpower budgets must be used to identify skills which, in the main, non formal programme should provide.

In cases where the demand for skilled labour is for the present lower than supply, where there is large unemployment, as is India, education do no more than redistribute unemployment, but even such redistribution by spreading un or underemployment between various social groups may be preferable from the equity point of view. Non formal education has a special role in dealing with certain types of unemployment. Non formal education

programmes can facilitate retraining and re-employment where unemployment is due to a technical change as when energised pumpsets replaced the large leather buckets for drawing well water for field irrigation, which threw all the rural bucket leather workers in Tamil Nadu out of work, or when there is exhaustion of a natural resources as the drying up of gold in the Kolar Gold fields; or in the case of sumptuary legislation as prohibition in Tamil Nadu which threw 5 lakh toddy tappers and distribution agents out of work; or when there is migration of a plant, as in the case of plants migrating from states which suffer periodic and heavy power cuts to states with assured power supply.

Man power Models have found another use. More recenlty in building futurological models - the best known being the Club of Rome - Limits to Growth Model, the Japanese Club of Rome - Strategy for Survival Model, the United Nations (Leontiev) - Future of the World Ecónomy Model and Bariloche Foundation - Catastrophe or New Society Model, while education is ignored (except in the case of the Bariloche Model), the manpower skill requirements of the economy as it develops over the next two decades are incorporated in the models either as totalundifferentiated labour requirements calculated directly prorata against installed capital, or through a Cobb-Douglas production function, with little or no capital/labour substitution.

At this point the limitations of the Manpower Model as establishing a casual relationship between demand for different types of skills in the economy and the educational system should be reviewed. At the purely practical level, employment in a country does not seem to depend primarily on the skills acquired through education, as much as on such non skill and non educational consideration as caste, recommendations, sex, etc. as noted earlier; this is not just an Indian phenomenon; in industrialised countries, it is colour, idealogy, family relations more than schooling or skills which determine employment. At the sunstantive level, there is the problem of defining "skill" which is not attempted in any of the futurological models, and its relation as to whether it is a

function of capital intensive or labour intensive technologies ignored. Further the Manpower Model as far as education is concerned has to forecast the skills that will be needed five to ten years, preferably fifteen to twenty years from now, for that is the time horizon that the formal system will need to turn out the skilled persons needed. The skills needed in one or two decades from the present will depend on nature and directions of technical change that will take place in the various sectors and subsectors. Not only are there difficulties in forecasting the changes in technology in the agricultural and manufacturing sectors that are likely to take place over this time period, there are also uncertainties arising in trends in labour productivity by different skill groups, giving varying estimatesin the demand for labour add skill types. Also skills are inter changeable, as in the case of a welder and metallurgist, a brick layer and a mason, a teacher and a supervisor so that manpower of one grade can substitute for one purpose or another.

The most serious critique[23] of the manpower and human capital approach as a determinant of the educational system points to its methodological individualism as against the fact that a person chooses his education, not on the basis of the results of manpower surveys to acquire the skills which are likely to be in demand, but because of his desire to acquire a class specific qualification, what our sociologists call the influence of Sanskritisation in our country, which has nothing to do with manpower budgets and indicators; not on the basis of any cost benefit analysis,, but because of the class specific teaching in terms of method and content, which is evidenced in the rush for admissions to the elite educational institutions in our country; and not on the basis of rational individual choice but because of the politically determined supply of educational facilities, seen in the location of our from the +2 classes, our universities, IITs, and IIMs. In this view all educational goods are political goods, that is, goods determined by the government in the form of collective action, democratic action and bureaucratic action, which means that it is futile to treat them as economic goods, which are goods whose structure, quality

and value are determined by the market. Hence educational provisions and plans for the country instead of being derived from non operational manpower budgets and human capital cost benefit considerations might as well be based on basic social and educational needs of a welfare state which India is. There is also reference to the rationality trap of these models, wherein with the state policy for education, lack of information and market imperfections (the market signals like prices, wages and incomes determined politically, not in terms of marginal productivity, etc. produce sub optimal solutions), any individual decision based on investment criteria and considerations will produce systematic contradictions between individual and social rationality, contradictions which are hightened by unbalanced economic and social development of our times with their correlaries of alternating bouts of unemployment and over employment. These Models - Rate of Return and Human Capital and/or Manpower are based on a dangerously over simplified model of the educational function which has a vastly more complex mandate discussed under the so called consumption functions and the social benefits of education. These various complementary functions of education are not separable, (not even through application of the theory and techniques of joint products), the political, social and cultural forces are its main determinants and not the market, and there is an element of absurdity in the manpower budget bringing together in the same vector the manager/employer and worker/employee who are in basic conflict in the market. The truth in this rather severe critique is that the questions of how much education, what types and where, for our country are decided by the political processes and pressures, the social demand, the political explosion, the ideological conviction of the ruling parties rather than by any human capital, cost-benefit or manpower studies considerations. In fact, the latter do not figure in any of the Education Commission recommendations whether it be the Lakshmanaswami Mudaliar Committee on Secondary Education, the Radhakrishnan Committee on University Education, or the Kothari Education Commission, nor do they underlie the educational allocations made by successive Planning

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Commissions, including the current ones.

What then? Where do we go from here? The basic truth on which the Manpower Model is built stands uncontroverted, and that is that education expansion in our country and all countries has occurred because the economic demand for various types of skills and various forms of labour has expanded, and so has attracted investment expenditures. Behind the non market forces which determines the scope of educational services is this historical fact. Also the demand for education expands because the rise in living standards generates a larger growth of welfare and an increasing welfare demand for education. Thus there is an interacting circle, with education producing a more qualified work force, which produces a better educated citizenry, which produce a fuller and richer living level, in turn augmenting the demand for education. One moral of this analysis of the economics of education in India is that formal education performs a necessary function for economic and social development in acting as a factory for turning out skilled workers of all types, and as a filter for selecting elites (including those sanskritised from weaker social sections), as vehicles for the preservation, transmission and renewal of certain privileged life styles. Hence for the country, there is also the choice of Non formal Education which is the traditional community stream of education, informal in structure, work oriented and in that sense vocational in objectives, community integrated in terms of its being part of the local self reliant culture and aimed at adults as well as children, with low costs and quick and early pay off as seen in all models examined.

Financing

This summary review of the Economics of Non formal Education must conclude with the problems and potential of the financing of Non formal Education. The first feature to note is the very small financial resources that are made available to non formal education from the Education Ministry's budget. It was earlier seen that taking Plan expenditures in India, the Education Ministry's Non formal Education

provision were 0.5 to 3.3 per cent of the total education provisions, whereas the non education Ministries provided 24.8 to 53.6 per cent of the total Plan education provision mainly for non formal education. This is not peculiar to India. A 1970 Unesco survey reports that out of 30 countries responding, 19 countries spent less than 1 per cent of their total educational expenditures on Non formal Education, 10 spent between 1 to 2 per cent, 6 spent 2 to 3 per cent and only 4 countries spent more than 4 per cent. Unesco's 1972 Third International Conference on Adult Education in Tokyo summed up the financial dilemma faced by Adult (and non formal) Education thus: "In most countries the purse strings were kept tightly drawn and Adult Education got the crumbs from school education's well laden table .... it was noted that those who were nationally responsible, politicians and administrators alike, were simply not alive to the objectives of adult education, and that expenditures for adult education were considered to be optional expenditures." Non formal Education's financing dilemma is a circular chicken and egg one: Non formal education needs adequate finances - (not much as shown in our draft Plan for 1978-83 where to educate 3.2 crores more children in the age group 6-14 a provision of Rs.900 crores is made, an unspecified part of which will be for non formal continuing education of primary school drop outs in the age group 9-14, while for the adult education of 6.5 crores illiterates in the age group 15-35 one third of that provision, namely Rs.200 crores is made) - but adequate finances for it will come only if people have been non-formally educated.

The sources of financing non formal education may be grouped under two broad heads - private financing and public funding.

Private Financing

The private financing of non formal education can be further subdivided into (a) contributions by voluntary agencies, (b) income from fees and (c) expenditures on books, stationery, sometimes board and lodging and income foregone. While contributions from voluntary bodies

are declining in formal education due to the fall in the real value of endowments as a function of inflation and the drying up of the sources of private philanthropy, in the case of Non formal education they form an important part in two ways. The more important part is that the voluntary agencies - the host of schools, colleges, universities, educational and social service agencies, the YMCA, YWCA, and other religious, cooperatives, trade union and employers organisations, firms and factories - provide the intellectual and organisational infrastructures for this programme. The NAEP for instance relies heavily for its effort on voluntary agencies about which it states: "owing to the emphasis on flexibility in regard to instructional arrangements, diversification in regard to curriculum and methods and voluntarism and autonomy as the basic refrain" a place of precedence is accorded to voluntary agencies. To date no effort has been made to quantify in monetary terms this contribution. Some pilot studies show that their total contribution when quantified could be around 50per cent more than the monetary expenditures that they incur.[24] In addition, voluntary agencies - particularly cooperations trade unions, factories and employers organisation as well as the social service organisations like the Rotary, Lions, YMCA and YWCA and private foundations raise considerable monetary resources to run their non formal education programmes. These again have not been surveyed and established on all India basis. A general hypothes: is that should be made on the basis of studies is that the contribution of voluntary agencies in planning and operating non formal education programmes is an important one.

Fees.

Turning to the financing from fees, it may be noted that fees continue to be a rather important means of financing formal education in the country. According to the (Kothari) Education Commission report, in 1960-61 fees found 48.5 per cent of the total expenses involved at the college level, 39.2 per cent at the secondary school level, 37.4 per cent at the university teaching departments level, and 37.2 per cent at the pre school level, financing in all 17 per cent of total formal education ex-

penditures. More recently the case for raising fees at the college and secondary school levels has been brought out in a study[25] commissioned by one of our state governments, which by implication will allow for a more adequate financing of non formal education programmes recommended by the same study in its first report (quoted in pp 38-42). Allowing for all the limitations of using the cost benefit tool,, the study undertakes what in effect is the first government commissioned study in our country to apply the tool. Its major conclusions as far as costs incurred, benefits obtained, fees to be levied, and some restructuring of the system to be undertaken including extending the non formal system are set forth below:

- As private expenditure forms a considerably vital component of the resources cost of education, steps should be taken to assess the private expenditure periodically atleast once in five years. A quinquennial sample survey may be prescribed and may be carried out by the office of Research Development and Planning in the office of the Secretary of Education in collaboration with the NCERT, Delhi and the SCERT, Tamil Nadu and the Department of Statistics.

- As the analysis in para 2.6 of the (first) Report of the Education Finance Review Commission, the urgent need to improve the facilities in the primary schools which form the foundation for the whole structure of the educational eddifice is reiterated. Mere provision of teachers cannot improve the quality of education, unless a better educational atmosphere and environment is also provided to enable the teacher to impart better education. This may also reduce

stagnation. As recommended in Recommentation 2(a) of the First Report of the Education Finance Review Committee, some 25 per cent of the annual budget for primary schools should be provided for improvement of the school environment, with about half of this being earned by the school through socially useful productive work (SUPW). This element, SUPW, which is at present completely absent in the formal education system, should also be introduced at secondary and higher secondary levels as a means of providing resources for improving the school environment.

- A distinction should be made and maintained between educational expenditures as set forth in annual budgets and the Education Demands of the State government, and the educational costs, comprising the real resources used by the educational system, namely institutional cost-recurring and capital - and household costs, which include fees, non fees and earnings foregone. This should be the task of the Office of Research, Development and Planning in the Office of the Secretary of Education recommended.

- For maintaining records on capital costs, all costs centres of the education industry, namely, schools and colleges and other connected organisations, should keep separate capital account records. An Expert Committee may be established to prescribe the proforma to be filled by each institution regarding the capital assets accounts, the method of computation, including detailed breakdown by sq.metres and their cost components, the method

of depreciation to be applied and the means of arriving at the net value at the end of the accounting period. A manual explaining these details can be developed and supplied to all the institutions. Wherever a Commerce Department is available, the valuation of such capital assets can be included as a built-in practical programme for it. To facilitate such accounting, well planned code numbers should be assigned to charge capital and current expenses as and when incurred and in preparing annual returns and inspection reports. The responsibility for implementing this recommendation will be that of the Office of the Research, Development and Planning in the Office of the Secretary of Education.

- On the basis of the data compiled as a result of implementing Recommendations III and IV, a price series for education inputs should be developed, maintained and published periodically by the office of Research, Development and Planning.

- In view of the fact that the private cost of education, whether absolute or unit, is about one-third to one-fifth of the social cost of Education and the school and college completers are to the extent of 80 per cent from the top 20 per cent of society, fees should be levied at the secondary and higher secondary levels and increased at the degree and post graduate levels (in accordance with Recommendation 17(ii) and (iii) of the (First) Report

of the Education Finance Review Committee, so that this wide gap between private and social costs can be narrowed. This would also be one means of keeping the financial burden of the expanding education system within bounds of the rate at which government resources are increasing and ensuring that those who are able to pay for their education do so, while those from the poor sections are given free education and scholar ships or loan scholarships, depending on parental incomes to vover non-fee costs.

- Social unit costs at all levels of education are high. One way of reducing the unit costs is through making fuller use of the existing capacity of the schools, colleges and universities through (a) operating two shifts in the primary and secondary schools, (b) extending and universalising evening colleges at the collegiate and university level and (c) using the facilities of the formal system for non formal education.

- Even allowing for some deflation of the rates of return to allow for the operation of non-educational factors (which will be present at all levels of education and may to some extent cancel one another out), the returns on primary education are remarkably high under all 3 assumptions, while the returns to degree and postgraduate levels are consistently low, indicating the need to increase the resources allocated to primary education, with a view to universalising it through increase of its

retentive capacity, and using to the full its unused capacity and developing new capacity through non-formal education.

- The rates of return - private and social - are the highest at the secondary level which is a signal that the resource allocation in secondary education should be increased, as it has a high private and social pay off. However the large difference between the two rates at this level, with a large positive differential in favour of private rates over social rates, is an indication in favour of vocationalising this level as one means of increasing social returns and so narrowing the gap between private and social rates.

- The very low rate - both private and social - of graduate and post-graduate education - much lower than the 8 per cent normal bank rate of the deflation factor is applied - indicates the need to (a) restructure this level of education in order that the future flow of benefits from it may be increased, (b) restrict through a policy of selective admissions the numbers enrolled at this level (with usual reservations and preferences to students from the backward classes) so that the returns may be raised (c) plan for some stabilization of the resources allocated to degree and post-graduate levels, (in this context, attention is drawn to the policy of selective admission followed in the

most heavily (public) subsidised degree and post graduate sector - namely professional education - which is excluded from the scope of this study and the very high private returns accruing to it, which can be regulated by some public regulation of their returns).

There is a general feeling that fees do not play an important part in non formal education programmes, a feeling reinforced by the NAEP programme not providing for a fee income. This general presumption is not grounded in fact. One recent survey[26] of 15,000 small and large coaching institutions in the country with over 2 million students, which, in part prepare students for the diplomas and degrees of the various universities and for the IAS, IPS & IFS examinations, but in larger part train the participants for secretarial practices, journalism, interior decoration, the manning of company switch boards and reception desks, fine and applied arts, dancing and music, book keeping and accountancy operating elementary data processing machines, sales and marketing, assembly of radios and TVs, motor driving and repairs, an assortment of crafts and trades from stitching and embroidery to doll making and leather craft, and in various foreign languages, the better ones among them using modern data machines, audio visual teaching aids and a system of highly personalised attention which account for their popularity and success contradicts this presumption. (Enrolment in these non formal learning classes at over 2 million is about equal to the enrolment in universities at 2.2 million in 1973-74 reported by the Draft Five Year Plan. There is an element of deschooling and retraining in these NFE programmes). But the financing point is that all these courses without exception are fee based, ranging from a small Rs.2 for admission and Rs.5 per month for a three month course in typing to Rs.300 for a short course in quick job getting skills. The resulting cost-benefit of these non formal courses are clearly weighed by the students who join them, who compare them with high opportunity costs and low

benefits of the formal system with its "long and tortuous process of admission and the much longer time and money that has to be spent in acquiring a much less efficient qualification for employment" the survey reports. Thus unlike in the formal system most post primary levels of non formal education programmes are financed by the fees that are paid by the students. One exception to this generalisation is that of urban pre primary schools which being used by the well to do urban middle classes are fee based. There is need for study of the total amount of fees raised in these Non formal Education institutions and analysis of their cost benefit relationship, an analysis in this case which would be relatively free of the limitations of the model discussed earlier. As an aside, I am of the view that these coaching institutions are in embryo what the community colleges in the US and the folk schools and colleges of Scandanivia are, so that I believe that we educators and the government should stop treating them as education outcastes (there are profiteering black sheep among them, but there are more of those in the formal system also and there are ways of isolating them) but recognise their worth and value and work along side of them to make them part of the non formal training system.

Other Private Sources

On the third source of private financing of non formal education for books, stationery, travel, board and lodging and income foregone, there is almost a total lack of information. That they are an important part of the financing problem is indicated by comparable information for the formal system collected by (Kothari) Education Commission which reports that in 1965-66 the lowest per student cost on these items varies from Rs.1.10 at class I to Rs.25 at class XI and the highest from Rs.30.60 to Rs.259.65. The private agencies non formal programmes are in the main operating in the post primary areas and their per student cost on this item is likely to vary from Rs.100 to Rs.500 depending on the courses. Here again there is need for some systematic study of the cost and financing sources involved.

Turning to the other broad areas of the private financing of non formal education, two preliminary observation need to be made. First the National Adult Education Programme, like the primary education programme, is rightly not fee based, rightly because from the point of view of efficiency the benefit from literacy is general rather than specific so that its financing has to be treated as a social cost, but more importantly from the point of view of equity, the adult illiterates are all from the poverty sector and the NAEP is part compensation for their having been left out of the learning system. The second general observation is that all other post primary non formal programmes run by government departments(and they are increasing in number every day), including at a certain stage the follow up post literacy programme, should at least in part be fee based (with the usual scholarship for those from the low income or poverty sector), not only because of the principle that "people do not value anything that is given free, that the payment of a fee is an indication of the seriousness of purpose on the part of a student or his guardian"[27] but also because the rewards of non formal education are quite specific and learning related and its cost or a part there of can be assigned as fees to the participants.

Public Financing

The sources of public financing of non formal education can be classified into: (a) allocation from general taxes (union, state or local) (b) ear marked taxes, (c) cesses, (d) loans, (e) tax relief and (f) contribution in kind.

Taxes

The allocation to non formal education particularly at the primary or literacy levels is from general taxes. Education till recently has been a state subject and though now moved to the concurrent list, the financial allocation principle is unchanged. The problem here is that the States have in elastic sources of revenue such as land tax, sales tax, transportation tax etc. against expanding sources of

development expenditures such as education, health, social welfare, rural and community development, housing and agriculture. The Union government has elastic sources of income such as income tax, wealth tax, corporation tax, customs and excise etc. The result is that education has to be subsidised by the Union government vis a vis the States to the point where the development of education - both formal But even more non formal - depends on the nature and quantum of the Union subsidy, which in turn is decided on a host of criteria (the Gadgil formula, the relative possible pressures etc.), in which the demands of non formal education play little or no role. One reform needed is for a long term (long term because educational outlays are like capital formation), possibly, statutory, provision for the more equitable sharing of all the elastic sources of revenue referred to earlier, which would reflect as nearly as possible the functions of the Union and the States in Development and the education enterprises.

Local Government financing

There is also the financing of non formal education through taxes raised by local authority, the city corporation, town municipalities and the Panchayati Raj institutions. Parallel to the view that educational planning and execution, particularly at the primary and adult education, literacy level, should be as close to the operating level as possible, the financing of these two forms of education should be the responsibility of the local authorities. In fact however as the Asoka Mehta Committee[28] high lights it, their financial resources are meagre and there is for them a general lack of incentive for raising additional revenues. The taxable capacity of the people is almost wholly pre-empted by the Union and State authorities and what is left to the Panchayati Raj institutions are very small sources of tax revenues, usually additional cesses on taxes levied by the State governments. The other problem of the lack of incentive of the Panchayati Raj bodies to raise the maximum revenues is due to their being so near the tax payers that at elections they vie with one another in pledges to keep taxes down (the thesis of "no

taxation, only representation" as the Asoka Mehta Committee describes it) and their being subsidised by the State governments in place of a real devolution of financial and programme authority to them as recommended by the Asoka Mehta Committee.

Some of these problems of Panchayati Raj financing of education - there is almost no financing by local bodies of non formal education - are high lighted in an investigation[29] that I conducted for my State government set forth in the table below:

Unit	1965-66	1968-69	1973-74	1974-75
1. Percentage of Panchayat Union Councils' contribution to total primary education expenditure	20.29	15.75	9.78	9.75
2. Percentage of education allocation in total budget of Panchayat Union Councils	13.58	12.10	7.88	7.75

The disincentive factor can be seen in the manner in which the subsidising of educational expenditures of the Panchayat Union Councils' operates, each of which received a flat per capita subsidy of a given amount from the state government, the balance of the educational expenditure being shared between them and the state government in accordance with the degree of development of the area covered by the council in question, which were for this purposeclassified into six groups, the most developed being in Group I and the least developed in Group VI. The resulting financial sharing is seen in the table below:

Group	State Government share	Panchayat Union Councils' share
I	60	40
II	70	30
III	80	20
IV	85	15
V	90	10
VI	95	5

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The table shows that the Panchayat Union Councils' financing of the first level of formal education is extremely tenuous, even the most developed councils contributing a smaller part of the total costs, with the current system of subsidies acting as a major disincentive. In this situation to generate more local tax resources, I have recommended that (a) the flat rate subsidy be abolished, (b) the councils be allowed to levy an educational surcharge on the people, with the proceeds being maintained and operated in a separate account, (c) a per capita ceiling for each student place be established for the entire State to prevent rampant feather bedding and, (d) the State government share be reduced by around 50 per cent for groups I to IV.

The Asoka Mehta Committee goes further and recommends the devolution of all development functions - agriculture and allied sector, health, education, communications, rural industries, marketing, welfare of backward class and family welfare - to the zilla parishads. Under education, it includes the broad spectrum of what it calls human resources development which it says should be a primary feature of Panchayati Raj institutions. In fact it takes for granted the current responsibility for primary education given to those institutions, and outlines an imaginative programme of Non formal education that they should undertake, ranging from helping in the training of officials and elected representatives of the Panchayati Raj institutions to Adult Education programme, Mahila Mandals and vastly increased women's programme, young farmers, clubs, Nehru Yuvak Kendras, etc. To carry out these devolved development programme including primary and non formal education, the committee recommends on financing (a) the transfers by law from the State as reviewed and approved by the legislature, (b) the establishment and operation of compulsory powers of taxation by the Panchayati Raj institutions which would include inter alia, the house tax, profession tax, entertainment tax and special taxes on land and buildings, (c) the transfer of public properties such as poramboks, grazing land, unreserved forests, orchards, public lands, cattle ponds, fishery, tanks,

ferries, quarries, etc. as a means of maximising their yield, (d) the revenue from markets melas, whandies and fairs, their custody being vested in the Panchayati Raj institutions and (e) the transfer of all Plan projects and their funds. This is a comprehensive charter which turns away from the past and current profile of not trusting Panchayati Raj institutions to execute the development programmes and the lack of political and bureaucratic will to foster them and allow them real financial powers. The execution of the non formal education programme including NAEP at this level would make them truly mass programmes and effective developmental instruments. And this requires not only the political will in Delhi and State capitals and the ability of the civil service to work with locally elected representatives, it also involves breaking the hold of the local oligarchic net work on Panchayati Raj institutions. And towards this purpose, the non formal education programme through playing its part in the organisation of the poor as set forth in the Draft Plan documents, and NAEP through the realising of its objective of social awareness can make a not insignificant contribution.

Annual Audit

In this context, for local government or even States financing of non formal education, a rather important consideration is not to proceed by the unilinear method of financial additions, as we have done to some extent in the case of NAEP financing, without first undertaking a technical, management and financial audit of how the existing resources are being deployed in the educational system. In the education sector, unlike in other sectors like agriculture, housing, manufactures or health, over 90 per cent of educational expenditures, what we call non plan expenditures, are just a continuing commitment from the past 10 or 20 or 30 years expenditures on teachers salaries, educational administration, repairs of buildings and up keep of equipment. When such an audit is made, as was done by the First Education Finance Review Commission referred

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to earlier, it was found that some 20 per cent of the annual educational expenditures of Rs.180 crores per annum is wasted in various forms of feather bedding in teaching personnel, wasteful administrative procedures and personnel, uneconomical buildings and unused and unusable equipment. I said earlier that the Rs.200 crores provided for the National Adult Education Programme proceeds only in part by the method of addition, because in part the funds have been found by reducing the percentage share of secondary education from 19 per cent in the Fifth Plan to 15 per cent in the current Plan and that of university education from 23 per cent to 12 per cent. These reductions however have been made as policy decisions, and not on the basis of a detailed auidt of the Fifth Plan educational expenditures as suggested earlier. It is hoped that the reduction imposed will lead to such an audit. My conclusion that non formal and adult literacy programmes can to a large extent be financed from savings of existing educational allocations to formal education as set forth in the report thus:

> The economical use(of the allocated educational funds includes a more rational and restrained policy of teacher recruitment based on an effective application of recommended teacher/pupil norms, which in turn calls for a realistic method and form of reporting average monthly school attendance.** There are also certain infructuous expenditures currently incurred as in regard to financial incentives for study in one's mother tongue, the State carrying the financial burden for the first stage of post secondary education and for teacher and physical education training, the expenditures on central kitchens run in their present form, duplicating and over lapping uneconomical higher elementary and unviable

high schools, and the state subsidising the wide gap in the fees as between the government and private aided college, to which I wish to call your attention. This group of economies is estimated to yield an annual saving of around 20 per cent of the annual education budget.

The more efficient use of the existing resources recommended will also meet future growth expansion needs, including eight programmes, covering the continuous in-service training of teachers, improvement of the school environment, non formal education for school drop outs and non attenders, introduction of work experience in schools, functional literacy to eradicate illiteracy,*** vocationalisation of the higher secondary course, setting up a full-fledged State Council of Education Research and Training and taking over the scholarship programmes for the poor till now financed by the Union government, and operating a small talent and merit scholarship programme. This group of essential qualitative reforms is estimated to cost around 10 per cent of the annual education budget, which is about half the level of economies recommended. Thus there is no increase in the state's educational expenditure that is envisaged. The essential qualitative inputs and the new non formal learning programmes that we have recommended are to be financed from within the exsiting level of appropriations.

All this involves two essential preconditions. The performance budget for education

> must become much more of a control instrument than it is at present. And it must be established after a detailed review and scrutiny of every so called non Plan as well as Plan scheme.

Three other comments should be made on this section of financing education by taxes. One is that the revenue raised by the existing taxes at the Union, State and Local levels can be increased sizeably by improved methods of tax collection, plugging tax loop-holes and taking punitive action against tax evasion which has become a national pastime. Such measures have increased tax revenuee by as much as 10-12 per cent in the countries where they have been tried. Another issue is the effect on the growth of the economy and the equity objective of taxation and that part of it allocated to education. Unlike the industrialised countries where the major part of public revenue is from direct taxes, in India the major part is from indirect taxes. (The Draft Plan states that of the additional resources of Rs.13,407 crores raised during 1974-78, direct taxes yielded Rs.278 crores, interest tax Rs.383 crores and agricultural income tax Rs.6 crores). This regressive tax instrument is not only a break on growth, the heavy public subsidy of formal and non formal education in India involves transfers from the poor, low income and lower middle income groups who contribute around 80 per cent of our indirect tax revenue to the upper income groups. In this sense, our sources of financing are worsening the unequal distribution of assets, wealth and living levels, to which should be added the hidden private costs, including opportunity costs of education which tend to all disproportionately on the poor majority of the country.

Ear-marked taxes.

The public financing of Non formal Education can also be through ear-marked taxes and cesses. In fact ear-marked taxes are specially

appropriate to non formal education programmes for workers education, their technical training, apprenticeship schemes, farmers education and functional literacy programmes. In these learning systems because of their identifiable service to the sector concerned, ear-marked taxes and cesses could be levied on manufacturing industry and trade, on large and medium sized farms and the cooperatives associated with them to finance the system. There are several alternative basis for the levy of ear-marked taxes - the number of workers employed by the unit, or the total sales, profits or net income or value added. Of these, levying the ear-marked tax on the basis of number of workers employed by the firm or farm will encourage inappropriate capital intensive techniques, when we are committed to promoting labour intensive units; basing, the tax on total sales raises problems of inter-firm relations and inventories, so that profits in the case of a manufacturing firm and net income in the case of a large farm may provide a better base. Value added is the most preferred, and additionally a start can be made for the country in this desirable form of taxation on an almost pilot basis. Ear-marked taxes and cesses are a resource which should be introduced in the public financing of non formal education.

Loan Finance

Finally in the sources of public financing of non formal education, loan finance and tax relief and contributions in kind must be reckoned. Educational loans and educational bond issues are a recent educational financing innovation - since the early sixties - which have not yet been used in India. Some non formal education programmes in agriculture, rural development and family planning are to be financed from loans from the International Development Association of the World Bank. Unless integrated with increased production loans can have an inflationary impact, and create balance of payments problems. The problem also is to tie in this source of financing non formal education with other sources, so that the capital construction or equipment resulting from the loan is tied in with other resources needed for teacher salaries,

student scholarships. This might be helped with the World Bank's approach to educational loan finance, where the familiar distinction between so called capital and recurrent costs is being treated as an accounting device, and both costs are being made eligible under the long term loan, which because of its 50 year maturity period allows integrated and coordinated financing of non formal education programme.

Tax Relief and Community Contribution

The financing of non formal education also calls for a clear, long term national policy on income tax, wealth tax and gift tax relief and concessions - similar to various excise and customs relief and duty draw back concessions accorded to a number of export items. The taxing authority can regulate the flow of private funds into those sectors of education such as non formal education including the National Adult Education Programme to which it has given such high priority status. In view of the many ingenious ways in which such tax concessions are liable to be misused, safeguards should be built into the rules as to the beneficiary being a real educational agency and separate from the donor. There is also the untapped contribution in labour, local building materials, and teaching personnel that the local community can make to all forms of our non formal educational systems. The National Adult Education Programme was right in not budgetting for this contribution at the initial stage. But as the programme gets underway and one of its major purposes becomes realised, the people should be encouraged to take increasing responsibility for providing the above facilities - as part of a larger radical ecentralisation of political and socio economic structures and decision making, as Tanzania has successfully adopted in its Adult Education Programme in its Ujema villages.

REFERENCES

1. Adam Smith : An Enquiry into the Nature and Cause of the Wealth of Nations. Arlington House, New York, 1962.

2. Mill, J.S.: Principles of Political Economy, Longman Green, New York, 1907.

3. Marshall, A.: Memorials of Alfred Marshall: Edited by A.C. Pigou, Macmillan, London, 1925.

4. Marx, K.: Capital: A Critique of Political Economy. International Publishers, New York, 1967.

5. Schults, T.: Education and Economic Growth, University of Chicago Press, Chicago, 1961.

Dennison, E.: The Causes of Economic Growth in the US and the Alternative before us. Committee for Economic Development, Washington, 1962.

Aukrust, D.: Investment in Education and Economic Growth. OEEC, Paris, 1960.

. Orivel, F.: Les Consequences Economiques Des Perspective de Development de la Scolarisation dans les Pays en voie de I.I.E.P. Paris 1978

7. UNESCO: Readings in Economics of Education. Paris 1968.

8. IBRD: World Atlas 1970-76

9. Adiseshiah, M.S.: Let My Country Awake, Unesco, Paris, 1970

10. Planning Commission: Study on Quantum of Plan Outlays on Education, Training and Research included in Major sectors of Development including Education (Mimeo) New Delhi, 1978

11. Strumilin, S.G.: The Economic Significance of National Education- UNESCO Readings in the Economics of Education, Unesco, Paris, 1968.

Shoup, G.: Education and Earning Power in Venezula, op. cit.

12. Nalla Goundan, A.M.: Investment in Education. Journal of Human Resources Vol.II No.3 Madison. 1978

Kothari, V.N.: Returns to Education in India in Education as Investment. Meenakshi Prakashan, Meerut, 1967.

Paul, S.: An Application of Cost Benefit Analysis to Management Education. Journal of Political Economy Vol.80 No.2 Chicago, 1972.

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Blaug, M.: Layard, R and Woodhall, M.: Causes of Graduate Unemployment in India, Penguin Press, 1969.

Harberler, A.C.: Investment in Men Versus Investment in Machines: The Case of India in Educational and Economic Development. Frank Case, New York, 1966.

13. Shortlidge, R.L.: University Training for Gram Sevikas in India, G.B. Pant University, Pantnagar, 1976.

14. Stoikov, V.: Recurrent Education: Some Neglected Economic Issues. International Labour Review Vol. 108 Nos. 2-3. Geneva, 1973

Gannicot, K.: Recurrent Education: A Preliminary Cost-benefit Analysis. OECD, Paris, 1971.

Stoikov, V.: The Economics of Recurrent Education and Training, ILO, Geneva, 1975.

15. Government of India: Draft Five Year Plan 1978-83, New Delhi, 1978.

16. Swaminathan, M.S.: Education for Agricultural Progress. Zakir Husain Memorial Lecture. Indian Adult Education Association, New Delhi, 1975.

Hsieh, S.C.: The Effectiveness of Social Expenditures in Ceylon, and West Malaysia. United Nations Asian Institute for Economic Development Planning, Bangkok, 1964.

17. UNESCO: The Impact of communication on Rural Development. National Institute of Community Development, Hyderabad, 1969.

18. Bombay University: Studies in the Economics of Education. Vol.II Department of Economics, Bombay 1977.

19. NCERT: Field Studies in the Sociology of Education. New Delhi,

20. Mac Rae, D., Schweitzer, S.D., Smith, R.E., & Holt, C.: Manpower Programs to Reduce Inflation and Unemployment. The Urban Institute, Washington, 1971.

21. Boroles: Planning Education Systems for Economic Growth, Harvard University Press, Cambridge, 1969.

Foster, P.J.:The Vocational School Fallacy in Development Planning in Education and Economic Development. C. Anderson and J. Bowman. Aldine Publishing Company, Chicago, 1966,

IBRD: Report on Mission to Jordon, Washington, 1972.

22. Government of India. Learning To Do. New Delhi, 1978.

23. Wiedmaier: Basic Needs in the Social and Educational Sector and State Policy. International Institute of Educational Planning. Paris. 1978.

24. Towards a Functional Learning Society. Tamil Nadu Board of Continuing Education, Madras, 1975.

25. Government of Tamil Nadu: Second Report of Education Finance Review Commission, Madras, 1978.

26. Bali, Y.: The Plus and Minus of the Informal Education Crusade. Times of India. November 13, 1978, New Delhi.

27. 1854 Wood's Education Despatch quoted by the Report of (Kothari) Education Commission 1964-66, New Delhi.

28. Government of India: Report of the Committee on Panchayati Raj institutions. New Delhi, 1978.

29. Government of Tamil Nadu: First Report of Education Finance Review Commission, Madras 1975.

* The monthly earnings are related to: (1) year of graduation, (2) age at graduation, (3) grade point average for academic work, (4) initial period of unemployment in months, (5) numbers of jobs previously held, (6) employment in the state, and (7) months since graduations. The employment variables are:(i) employment in university research, extension and/or teaching, (ii) employment in union government corporation or research institute, (iii) employment in state government, and (iv) employment in farming on private business.

** The Draft Plan for 1978-83 has adopted this suggestion in the following terms: "It is therefore proposed to lay down 'average attendance' in addition to enrolment as a more legitimate basis for the assessment of the progress or provision of teachers."

*** This recommendation and report were made in 1975, two years before the launching of NAEP.

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